

### REMARKS

This is in response to the non-final Office Action mailed August 18, 2010. Claims 1-20 are currently pending, of which claims 17-20 have been withdrawn. Claim 1 is amended.

Reconsideration of the Application is respectfully requested in view of the amendments and comments provided herein.

### The Office Action

Claim 1 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-16 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Pat. Pub. No. 2004/0110867 to McCovick et al. (hereinafter "McCovick").

Claims 1-16 are rejected under 35 U.S.C. § 103(a) as obvious over EP 202,849 A2 to Cardew et al. (hereinafter "Cardew"), EP 145,305 B1 to Hana et al. (hereinafter "Hana"), and EP 277,834 B1 to Tomaschka et al. (hereinafter "Tomaschka"), in combination or alone in view of McCovick.

### Indefiniteness Rejection

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Particularly, in line 3 of claim 1, the Examiner asserts that the phrase "a type which includes: (i)...; (ii)...; and (iii)..." causes indefiniteness since "only one type of moiety from (i), (ii), or (iii)" may be used. Applicant respectfully disagrees and submits that the language of claim 1 is clear and definite as it stands. Particularly, claim 1 recites "[a] method of preparing a formulation comprising an ion-conducting polymeric material, the method comprising: (a) **selecting an ion-conducting polymeric material of a type** which includes...(i)...; (ii)...; **and** (iii)..." (emphasis added). Accordingly, the statement "of a type" simply means that the ion-conducting polymeric material that falls under this claim must include (i), (ii), and (iii). The phrase "of a type" is in no way limiting to only one of (i), (ii), or (iii) as the Examiner asserts. However, to further clarify this intention, Applicant has amended claim 1 to recite "(a) selecting an ion-conducting polymeric material of a type which includes a combination of (i)...; (ii)...;

and (iii)..." Therefore, Applicant submits that claim 1 is definite and clear. As such, the rejection should be withdrawn.

### **102(e) Rejection**

Independent claim 1 is directed to a method of preparing a formulation comprising an ion-conducting polymeric material. The method includes (a) selecting an ion-conducting polymeric material of a type which includes a combination of (i) phenyl moieties, (ii) carbonyl and/or sulphone moieties, and (iii) ether and/or thioether moieties, (b) selecting a solvent mixture comprising water and a first organic solvent in which mixture the ion-conducting polymeric material can be dissolved and/or dispersed, (c) dissolving and/or dispersing the ion-conducting polymeric material in the solvent mixture, and (d) removing greater than 80% of the total amount of the first organic solvent in the solvent mixture, thereby to leave a formulation comprising the ion-conducting polymeric material dissolved and/or dispersed in a solvent formulation comprising a major amount of water. Applicants respectfully submit that McCovick fails to teach or suggest the subject invention as recited in the present claims.

Particularly, Applicant submits that McCovick is directed to an aqueous pigmented ink formulation that includes colorant particles, the formation of which is detailed in paragraph [0030]. Paragraph [0030] specifically recites that colorant particles can be formed by various methods. One method recites "dissolving a dye in a water miscible solvent to form a solution..." However, Applicant submits that this process is irrelevant to the present subject matter since dyes are not ion-conducting polymeric materials. Paragraph [0030] additionally teaches "dispersing the solution as fine liquid droplets into an aqueous solution". Again, Applicants submit that this teaching is referring to a solution of a dye and, therefore, the reference is irrelevant, since it is not concerning an ion-conducting polymeric material. Further, Applicants note that paragraph [0030] recites "removing the solvent by evaporation"; however, it is again submitted that the solvent is removed from an aqueous solution that comprises a dye, which is not relevant to the present claims.

After listing the steps described in paragraph [0030], the Examiner recites "[i]n summary, a solvent mixture comprising water and at least some organic solvents are used to dissolve/disperse the ionomer (paragraph 70)". Applicants respectfully submit that the Examiner's "summary" does not in fact summarize any of the statements that preceded this

statement in paragraph 8 of the Office Action, since there does not appear to be any link between paragraphs [0030] and [0070] stated by the Examiner or the disclosure of McCovick.

Moreover, even if there was an identifiable link between paragraph [0070] and [0030], the combination of [0030] and [0070] does not disclose the features of claim 1. The Examiner suggests that “the later removal of organic solvent(s) would form the claimed ink formulation”. However, nowhere in McCovick is there a disclosure of point “d” from claim 1 of the subject claims. The Examiner recites that by doing so (meaning performing steps A, B, and C previously discussed in paragraph 8) “an ink jet composition comprising 30-90 wt% of water is obtained”. Applicant submits, however, that such does not equate to point (d) of claim 1. McCovick does not teach or slightly suggest the step of removing greater than 80% of the total amount of the first organic solvent in the solvent mixture, thereby leaving a formulation comprising the ion-conducting polymeric material dissolved and/or dispersed in a solvent formulation comprising a major amount of water. Since there is no clear and unambiguous disclosure of all the features of claim 1, Applicants submits that claim 1 is not anticipated by McCovick and the rejection should be withdrawn.

Additionally, Applicants submit that the subject claims are not obvious in light of McCovick. McCovick is concerned with producing a pigmented ink formulation containing polymer-encapsulated pigments, binder and smectite clay particles. This contrasts with the method presently claimed, which involves producing a formulation comprising an ion-conducting polymeric material that can be used in the preparation of polymer electrolyte membranes. McCovick and the presently claimed invention area directed to completely different problems and provide completely different solutions. Accordingly, one skilled in the art would not look to the teachings of McCovick, or find the teaching relevant if faced with them.

With regard to claims 2-16, Applicant submits that since each depends from and includes all the limitations of independent claim 1, which is novel and unobvious over McCovick, the dependent claims are also novel and unobvious. However, nonetheless, Applicants submit that the passages of McCovick referred to by the Examiner, namely [0030], [0070], [0058], and [0046]-[0048] do not teach or remotely suggest the features of the dependent claims, which are accordingly not anticipated by the disclosure of McCovick.

In view of at least the above, Applicant submits that McCovick fails to teach or suggest the method as presently claimed. Therefore, withdrawal of the rejection and allowance of the claims is respectfully requested.

### **103(a) Rejection**

The Office Action further rejects claims 1-16 under 35 U.S.C. 103(a) as being obvious over Cardew, Hana, and Tomaschke in combination or alone in view of McCovick. Applicants respectfully traverse this rejection for at least the following reason. Cardew, Hana, Tomaschke, and McCovick do not, alone or in combination, teach or suggest the subject invention as recited in the present claims.

Particularly, Applicants note that in paragraph 13, the Examiner acknowledges that Cardew, Hana and Tomaschke, alone or in combination, are silent with regard to removing "greater than 80% of the total amount of the first organic solvent. Applicant therefore concludes that the Examiner accepts that Cardew, Hana, and Tomaschke in combination or alone cannot render obvious claim 1 of the present application because none of the documents teach or suggest removal of solvent in the manner described in claim 1.

With regard to Cardew, the formation of a solution of a sulphonated polyarylether sulphone in a two component solvent mixture is disclosed. The mixture is cast, some of the solvent is evaporated, and then there is coagulation by use of an aqueous solution containing an inorganic salt. Cardew, however, does not disclose production of a formulation comprising a major amount of water and there is no intention or desire disclosed in the document for such a formulation to be prepared. Therefore, there is no motivation or suggestion for a person to adopt the features described in claim 1.

Similarly, Hana produces a membrane by casting from a solvent within a coagulation bath. However, Hana fails to provide any disclosure of all the features of claim 1 and there is no teaching or suggestion for producing a formulation comprising a major amount of water. It would therefore not have been obvious to modify the teaching in Hana and arrive at the subject matter of claim 1.

Tomaschke further discloses an example of the formation of a membrane, by casting a solution of a sulphonated polyarylether on a surface and then removing the solvent to form a film. However, there is no teaching or suggestion for a skilled person to modify the teaching in

the document in a manner described in claim 1. Accordingly, it would not have been obvious for one skilled in the art to modify the teaching of Tomaschke and arrive at the subject matter of claim 1.

Furthermore, in light of the different fields and/or problems addressed by Cardew, Hana, and Tomaschke, Applicant submits that one skilled in the art would not be motivated to combine any of the features in such a way as to arrive at the presently claimed subject matter. Moreover, even if such motivation was present, combining Cardew, Hana, and Tomaschke would not arrive at the subject matter of at least independent claim 1.

In paragraph 13, the Examiner suggests that McCovick alone can teach such a subject matter (i.e. the subject matter of point (d) of claim 1) and supports this assertion by referring to the three steps in McCovick relating to the dissolution of a "dye". Applicants submit that the dissolution of a dye as disclosed in McCovick is irrelevant to the subject matter presently claimed, as is the formation of an aqueous pigmented ink formulation, with which McCovick is fundamentally concerned.

Furthermore, in paragraph 14, the Examiner argues that "in light of the fact that all [cited references] are dealing with making of some compositions in the form of dispersions comprising ionomers and a solvent mixture comprising water and at least some organic solvents, one having ordinary skill in the art would therefore have found it obvious to further modify Cardew, Hana, and Tomaschka's compositions by removing some organic solvents as taught by McCovick. Applicants respectfully disagree.

First, Applicants note that the passage cited by the Examiner (in paragraph 13 of McCovick) is in fact in the context of removal of solvent from a dye-containing formulation, which is irrelevant to the formulations described in Cardew, Hana, and Tomaschke. Secondly, there is no motivation for a skilled person to modify Cardew, Hana, and Tomaschke by removal of organic solvents as (allegedly) taught by McCovick. In fact, Cardew, Hana, and Tomaschke each form membranes by casting a formulation that includes a high level of organic solvent and this is fundamental to the processes described, since, after casting, the solvent is evaporated and then there is a coagulation step by use of an aqueous solution containing an inorganic salt. It is essential that high levels of organic solvent-containing formulations are cast so that an aqueous solution can be used to coagulate. If the formulations of Cardew, Hana, and Tomaschke had high levels of water in them, then they would not coagulate on addition of further water. A person

skilled in the art would clearly not modify Cardew, Hana, and Tomaschke with arbitrarily selected feature described in McCovick relating to dyes and arrive at the subject matter of claim 1.

For at least the reasons set forth above, Applicant submits that the subject claims define patentably over the references of record either alone or in combination. Therefore, withdrawal of the rejection and allowance of the claims is respectfully requested.

#### **Additional Prior Art Referred To**

In paragraph 16, the Examiner cites to Wang and submits that Wang discloses that some epoxy-functional particles can be dispersed in a solvent mixture comprising water and at least some organic solvents so as to be in the form of a dispersion, although the ionomer is not used. The Examiner additionally recites that Wang is silent about removing “greater than 80%” of the total amount of the first organic solvent. Applicants agree that Wang is not relevant; however, given that none of the prior art documents disclose “removing greater than 80% of the total amount of the first organic solvent, in the context of ionomers of the type described in accordance with the presently claimed invention, Applicants submit that the Examiner’s reasoning with regard to the non-applicability of Wang applies to the other cited documents.

### CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-16) are now in condition for allowance.

Respectfully submitted,

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